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Document 36.1

Hazardous, Radioactive, and Biological Waste Management Requirements

Recommended for approval by the ES&H Working Group

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New document or new requirements

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36.1

Hazardous, Radioactive, and Biological Waste Management Requirements

1.0 Introduction

The proper management of wastes generated at LLNL is important for personal safety, protection of the environment, and regulatory compliance. LLNL has established specific waste management systems to promote the safe management of all waste types generated at LLNL, including hazardous, radioactive, mixed, and biological wastes. This document is designed to provide workers who generate or manage hazardous, radioactive, mixed, or biological wastes with an overview of waste type descriptions and waste management practices necessary to ensure that work is performed safely and according to all applicable regulations and LLNL policies. This document includes detailed waste management practices for biological wastes and more general management information pertaining to other waste types (hazardous, radioactive, and mixed). Detailed waste management practices for hazardous and mixed wastes are discussed in Document 36.3, "Management of Satellite and Waste Accumulation Areas for Hazardous and Mixed Waste," in the *Environment, Safety, and Health (ES&H) Manual*. Excluded from this document is information pertaining to management of biological materials prior to generation to biohazardous and non-biohazardous wastes. Information on management of biological materials prior to waste generation can be found in Document 13.1, "Biological Operations and the Safe Use of Biological Materials in the Research Lab" in the *ES&H Manual*. Expanded definitions are provided in Appendix A.

1.1 Regulatory Background

Different laws and regulations establish requirements for managing hazardous, radioactive, mixed, and biological wastes. The waste types and regulatory agencies that oversee management of them are described here.

1.1.1 Hazardous Waste

Hazardous wastes are regulated by the Federal Resource Conservation and Recovery Act (RCRA) and the California Hazardous Waste Control Law (HWCL). A material may be solely a RCRA- or state-regulated hazardous waste, or it may be regulated by other laws in addition to RCRA and HWCL. Wastes regulated solely by RCRA or HWCL are hazardous either because they are listed wastes or because they are characteristic wastes. A listed waste is a specific chemical or type of waste appearing on a list in 22 CCR 66261.1 – 66261.126, "Identification and Listing of Hazardous Waste," or 40 CFR Part 261, *Identification and Listing of Hazardous Waste*. A characteristic waste is one that is toxic, ignitable, reactive, and/or corrosive, as determined by specific criteria in Title 22

CCR and 40 CFR. Waste streams at LLNL have the potential to be hazardous wastes, either because they are federal or state listed wastes, or because they exhibit any of the four hazardous waste characteristics defined in Appendix A. These include:

- Acid solutions.
- Aerosol cans (pressurized or partially full).
- Aqueous waste contaminated with small quantities of metals or solvents.
- Batteries (e.g., lead/acid batteries).
- Beryllium wastes (refer to Document 14.4, "Implementation of the Chronic Beryllium Disease Prevention Program Requirements," in the *ES&H Manual*).
- Caustics (e.g., sodium hydroxide).
- Explosives (refer to Document 17.1, "Explosives," in the *ES&H Manual*).
- Heavy metals (e.g., lead or cadmium).
- Hydrogen peroxide.
- Paint thinners.
- Photographic wastes.
- Propellants.
- Reactive metals (e.g., sodium).
- Contaminated soil and debris.
- Solvents (e.g., xylene, methanol, and acetone).
- Waste oils (motor oil and hydraulic fluid).

Some hazardous wastes have regulatory drivers in addition to RCRA or HWCL. Examples include polychlorinated biphenyl (PCB) waste and asbestos wastes, which are regulated by the Federal Toxic Substances Control Act (TSCA) in addition to the California state HWCL under certain conditions.

The TSCA regulates wastes containing PCBs in concentrations of 50 parts per million (ppm) or greater. California has also enacted additional regulatory requirements covering these wastes as well as PCB spills. Both the Federal TSCA law and California regulations specify requirements for storage and disposal of PCB waste. The regulations differ according to the PCB classification for waste. LLNL has prepared comprehensive guidance, identification, handling, and management procedures for PCBs, which can be found in Document 14.14, "Management of Polychlorinated Biphenyls" in the *ES&H Manual*.

Asbestos wastes are hazardous wastes when they contain more than 1% friable asbestos. Extensive federal and state programs regulate asbestos materials and wastes. Handling asbestos safely is described in Document 14.9, "Safe Handling of Asbestos-Containing Material" in the *ES&H Manual*.

1.1.2 Radioactive and Combined Waste

Wastes containing only radioactive components, or radioactive and chemical components that do not meet federal hazardous waste criteria, are considered nonhazardous wastes and are therefore excluded from hazardous waste regulations. Wastes containing state regulated hazardous components and radioactive components are considered California combined wastes. Such wastes are also excluded from federal hazardous waste regulations and are managed according to radioactive waste management practices. Radioactive waste and California combined waste are regulated by the Atomic Energy Act, through the Work Smart Standards (WSS) process (DOE Order 435.1, "Radioactive Waste Management," and DOE M 435.1-1, "Radioactive Waste Management Manual."

1.1.3 Mixed Waste

Mixed waste (RCRA hazardous waste contaminated with radioactivity) is regulated by specific DOE orders (through DOE Order 435.1 and DOE M 435.1-1) for mixed waste and radioactive waste. Because mixed waste contains both federal RCRA hazardous and radioactive components, management of mixed waste at LLNL shall meet the requirements of RCRA and the Atomic Energy Act.

1.1.4 Biological Waste

Biological wastes are not regulated as hazardous wastes, but are regulated according to the Medical Waste Management Act (MWMA) in California when the waste contains infectious (biohazardous) components. Since the term medical waste is often mistakenly applied to only hospital or medical office wastes, this document has been simplified by using the term biohazardous waste instead of medical waste. All non-medical wastes will be referred to as non-biohazardous wastes. Examples of biohazardous wastes and non-biohazardous wastes are listed in Figure 1.

1.2 Scope

This document is a general overview of waste-type descriptions and waste management practices for hazardous, radioactive, and mixed wastes. Detailed requirements for hazardous, radioactive, and mixed wastes are located in other *ES&H Manual* documents referenced herein. This document also presents a more detailed overview of requirements for biological waste management because other *ES&H*

Manual documents do not include detailed guidance for this type of waste. As stated earlier, information pertaining to the management of biological materials prior to waste generation can be found in Document 13.1.

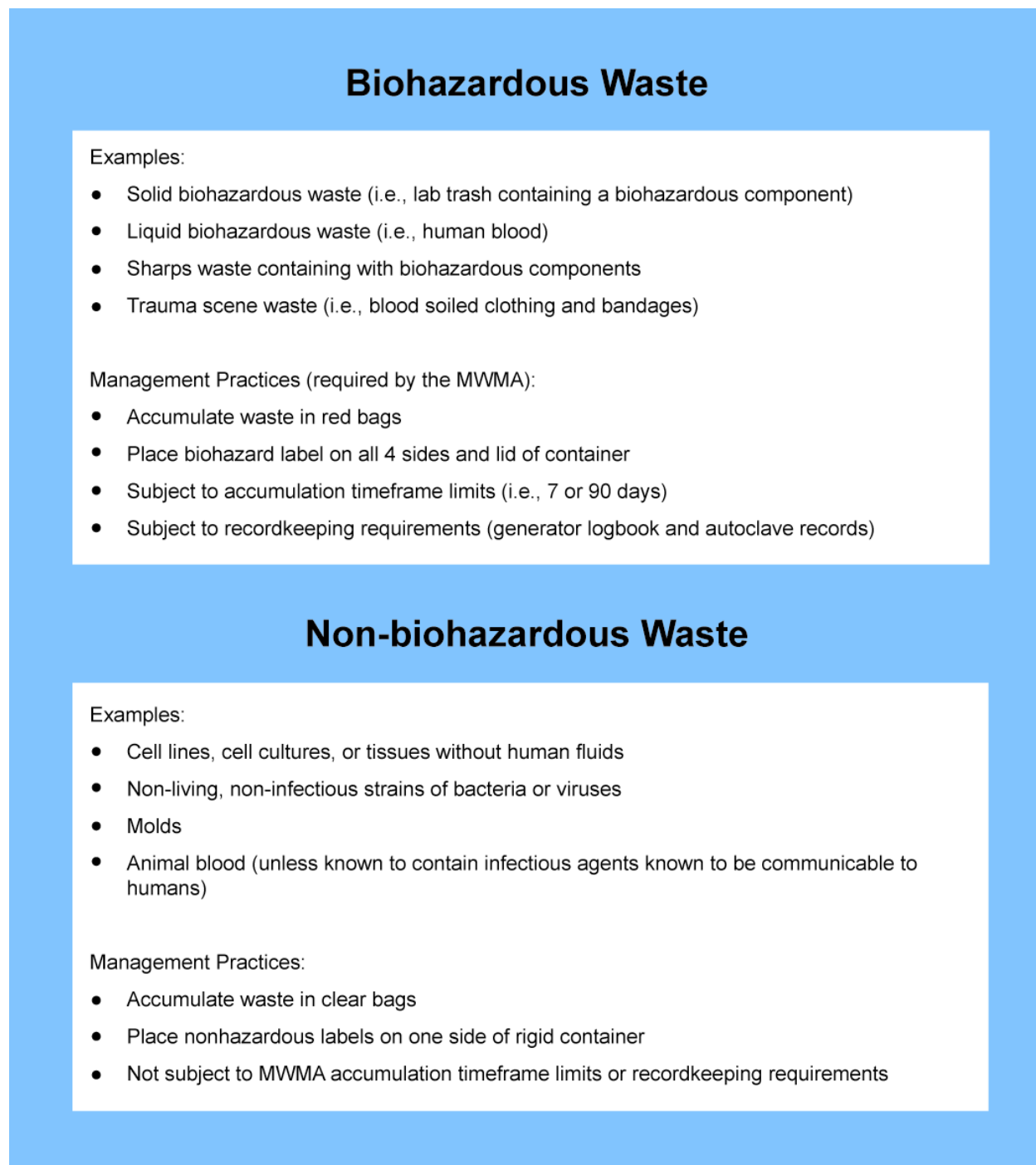


Figure 1. Examples of Biological Wastes.

2.0 Hazards

Many different scientific and industrial activities at LLNL generate wastes. Some of the chemical components in these wastes can cause detrimental effects to human health and the environment if not properly managed. Specific hazards and safety requirements for specific chemical materials are discussed in Part 14, "Chemicals," in the *ES&H Manual*.

Biohazardous wastes generated by LLNL at the Livermore site and Site 300 are of concern because of their ability to transfer infectious diseases to those handling them. It is imperative that generators of biohazardous waste perform proper waste management procedures and follow safety precautions for all activities involving materials containing human blood or other potentially infectious materials (OPIM). Appendix A provides definitions of the various kinds of biohazardous wastes.

3.0 Controls

LLNL has developed standard policies and procedures for hazardous, radioactive, mixed, and biological wastes to meet applicable regulatory requirements and ensure the safety of human health and protection of the environment. The controls discussed in this document are specific to managing wastes and are in addition to safety controls identified in the previously cited *ES&H Manual* documents.

Administrative controls (as opposed to engineered controls, which are devices or controls that isolate or remove hazards from the workplace) are established to ensure that all applicable environmental regulatory requirements for a given waste type are consistently followed throughout LLNL.

3.1 Administrative Controls for Hazardous Waste Management

Administrative controls are applicable to all hazardous waste types, including wastes solely regulated by RCRA or HWCL, listed wastes or characteristic wastes (as defined in Appendix A), and hazardous wastes regulated by laws in addition to RCRA and HWCL (such as asbestos and PCB wastes).

3.1.1 Waste Generator Requirements

Specific requirements related to managing waste located in a satellite accumulation area (SAA) or waste accumulation area (WAA), responsibilities of waste generators and limited generators, and associated training requirements are identified in Document 36.3.

Waste identification shall occur before determining whether any constituents in the waste meet hazardous waste criteria. As described in Document 36.3, determination is based on several facts, including the process that generates the waste, the resulting concentration of each constituent in the waste, and the location at which the waste was generated. LLNL is not permitted to accept some of the LLNL-generated waste streams for storage into its permitted facilities. Therefore, it is always advisable to consult with an ES&H Team Environmental Analyst or the Radioactive and Hazardous Waste Management (RHWM) Division Field Technician prior to waste generation.

3.1.2 Pollution Prevention

Pollution prevention and waste minimization steps should be incorporated when carrying out any activity that generates hazardous waste. Approaches to pollution prevention include source reduction—the technique of substituting nonhazardous or less-hazardous material, optimizing processes, and using good operating practices—as well as the reuse of materials, when feasible, and recycling. Refer to Document 30.1, “Waste Minimization and Pollution Prevention,” in the *ES&H Manual* for more detail on pollution prevention.

3.1.3 Controls for Hazardous Wastes Containing Asbestos or PCBs

Local air districts forbid the use of potentially friable asbestos in insulating materials and the spraying of asbestos during construction. Individuals suspecting the presence of asbestos in buildings to be demolished or renovated should notify the ES&H Team leader and environmental analyst as soon as possible. Early notification is important so that the required regulatory notification can be made in a timely manner, and so the industrial hygienist can ensure that proper asbestos surveys occur and controls are in place. Document 14.9 contains details on safely managing asbestos-containing wastes.

The TSCA regulates the manufacturing, processing, distribution in commerce, use as material or equipment, and waste management of PCBs. Two subcategories of PCB wastes are occasionally generated at LLNL: liquid wastes containing PCBs in concentrations equal to or greater than 50 ppm, and equipment contaminated with PCBs in concentrations equal to or greater than 50 ppm. Wastes containing liquid PCBs, which are managed in SAAs and WAAs, have different labeling and storage time requirements than those for equipment that contain PCBs and have been removed from service. Document 14.14 contains details on managing wastes containing liquid PCBs in SAAs and WAAs, versus management of PCB-contaminated equipment.

Wastes containing liquid PCBs in concentrations of 5 to 49 ppm are managed according to standard hazardous waste regulations under California’s HWCL; therefore, they have different management requirements than those for TSCA-regulated liquid wastes containing PCBs in concentrations equal to or greater than 50 ppm. Guidance regarding

management of California regulated hazardous wastes containing PCBs at 5 to 49 ppm can be found in Document 36.3.

The ES&H Team environmental analyst can assist individuals in determining the concentration of liquid waste containing PCBs by arranging sampling and analyses. Specific labeling and storage requirements for PCB-contaminated equipment can also be obtained through the ES&H Team environmental analyst.

3.1.4 Controls for Explosives Waste

See Document 17.1, "Explosives," for more information on administrative controls for explosives waste management.

3.2 Administrative Controls for Radioactive Waste Management

Radioactive wastes are not subject to hazardous waste management accumulation time or quantity limits. However, some of the same administrative requirements for hazardous wastes apply to radioactive wastes to ensure that the waste is managed and characterized properly, and that waste acceptance into RHWM as well as to offsite disposal facilities can occur. Other requirements include properly completing radioactive waste labels and radioactive waste requisitions. The Environmental Protection Department shall also follow strict protocols to ensure that radioactive waste meets offsite acceptance criteria. Generators should physically segregate radioactive waste containers from hazardous waste-containers to prevent commingling of wastes (inadvertent generation of mixed wastes). Generators should contact their RHWM field technician as soon as a radioactive waste container in their work area becomes full. This will expedite the movement of waste through RHWM prior to its offsite shipment. Additional controls for wastes containing radioactive components are included in the next section of this document.

3.3 Administrative Controls for Mixed Waste Management

All possible efforts should be made to minimize mixed waste generation at LLNL, in order to reduce overall cost and burden to the institution. Limited onsite treatment capabilities and limited available offsite disposal options make the disposal of mixed wastes difficult. The definition of mixed waste is included in Appendix A.

DOE O 435.1 stipulates that no radioactive waste (including mixed waste) can be generated unless a disposal path can be identified first. Any exceptions shall be approved by DOE. The DOE policy for radioactive waste [including transuranic (TRU) waste, low-level waste (LLW), and mixed waste, (which are all defined in Appendix A)] specifies requirements for life-cycle planning, waste reduction, treatment, storage,

disposal, environmental monitoring, and record keeping. Life-cycle planning shall be performed by the waste generator prior to waste generation. Such planning consists of working with RHWM to determine if a feasible disposal path exists for the proposed waste stream. A Radioactive Waste Management Basis (RWMB) has been written, which generally summarizes radioactive waste management controls relating to waste generators and treatment and storage facilities.

LLNL has developed an internal waste confirmation process for hazardous waste, LLW, and TRU waste to verify that such wastes are properly characterized (i.e., whether radioactivity has been added to hazardous waste, or hazardous waste has been added to radioactive waste). When completing a Waste Disposal Requisition (WDR) form for hazardous waste, the waste generator signs the confirmation statement confirming that the waste has not been exposed to radioactivity. Similarly, when completing a WDR form for radioactive waste, the waste generator signs the certification statement confirming that the waste has not been exposed to any hazardous components. Additional forms (i.e., Process Knowledge Evaluation forms for LLW, and Process Identification Worksheets for Federally mixed or California combined wastes) shall be completed in addition to the WDR form to ensure that the waste meets waste acceptance criteria at offsite disposal facilities. For example, LLNL has designated Radioactive Materials Management Areas (RMMAs) as locations, clearly identified with signs, where radioactive contamination of a hazardous waste could occur. Therefore, hazardous waste generated in RMMAs shall be evaluated for potential radioactive contamination and the confirmation process shall be implemented for such waste. Figure 2 shows the hazardous waste confirmation process and the process used for determining whether a waste will be classified as mixed.

3.4 Administrative Controls for Biological Waste Management

Management requirements for biohazardous wastes are related to accumulation, storage, record keeping, and treatment. All non-biohazardous waste that does not contain chemical or radiological components is autoclaved as a best management practice (BMP) for health and safety purposes. Waste containing chemical or radiological components is not autoclaved for health and safety reasons, and is instead, managed through RHWM. Wastes containing a biohazardous component and a hazardous and/or radioactive component, that has been decontaminated with a bleach solution to eliminate biohazardous components, are also managed through RHWM. Information and controls required for working with biological materials can be found in Part 13, "Biological," in the *ES&H Manual*.

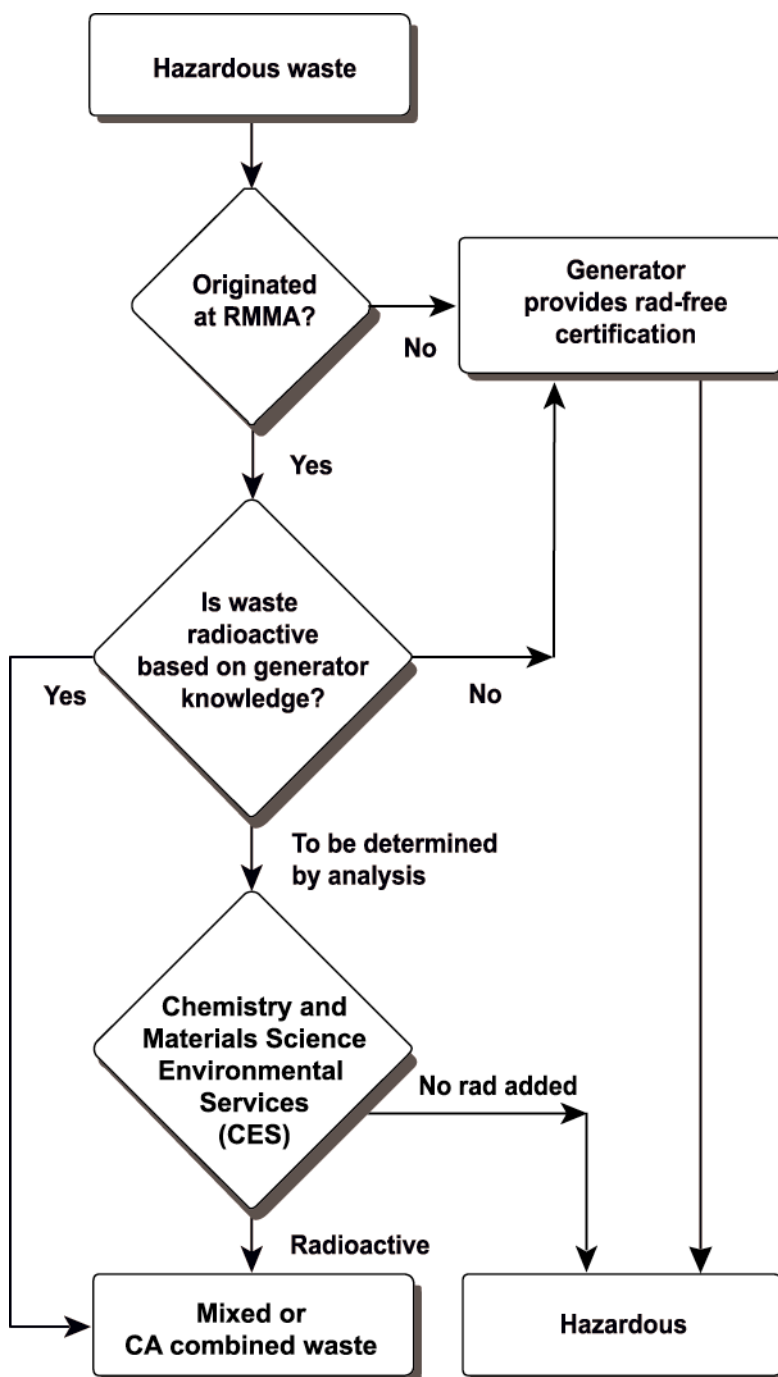


Figure 2. Hazardous waste confirmation process for wastes generated in RMMAs.

3.4.1 Biological Waste Accumulation and Storage

Biohazardous waste is required to be segregated from other waste types – such as hazardous, nonhazardous, mixed, and radioactive wastes – and is subject to different accumulation and storage requirements than those for hazardous and mixed wastes.

Non-biohazardous wastes are segregated from all other waste types, including biohazardous wastes, since they are not subject to regulatory accumulation or storage limitations. Non-biohazardous wastes, however, are still subject to internal LLNL BMPs and policies.

Solid Lab Trash and Liquid Wastes. Solid and liquid wastes containing biohazardous components are subject to the following waste accumulation requirements.

Solid (e.g., lab trash) wastes containing biohazardous components shall be collected in red biohazard bags labeled with the words "biohazardous waste" or the international biohazard symbol and the word "biohazard," then placed inside rigid containers.

Double bagging is often used as a best management practice to prevent leakage of waste. The container shall be labeled with the words "biohazardous waste" or with the international biohazard symbol and the word "biohazard" on the lid and on all sides. Chemotherapy research wastes shall be labeled also as "CHEM Waste" and Pathology wastes (i.e., recognizable human parts) shall also be labeled as "PATH waste," in addition to the biohazardous waste identification.

Since autoclaving is currently LLNL's only treatment option for liquid biohazardous wastes, liquid biohazardous wastes shall be collected in containers which can withstand the high autoclave temperatures. Therefore, generators of liquid biohazardous wastes shall contact their ES&H Team environmental analyst prior to generating the waste in order to select the most suitable container.

At the Livermore site, biohazardous lab trash and liquid waste stored above 0°C may only be accumulated for up to 7 calendar days after the first waste article is placed in the container. Biohazardous waste accumulated below 0°C may be stored for up to 90 days if freezer space is available.

At Site 300, biohazardous lab trash and liquid waste may be accumulated for up to 30 calendar days after the first waste article is placed in the container if the waste is accumulated above 0°C. Biohazardous waste may be accumulated for 90 days if stored below 0°C.

If a waste contains hazardous and/or radioactive components as well as biohazardous waste components, it is subject to hazardous, radioactive, or mixed waste regulations as described in the following section, rather than medical waste regulations. In this case, clear translucent bags inside a rigid container of any color are used for solid lab trash; a rigid container is used for liquid waste; and the appropriate hazardous, radioactive, or mixed waste label (rather than the biohazard label) is placed on the rigid container. Contact the ES&H Team environmental analyst for assistance in determining which container, bag, and label to use, as well as obtaining guidance regarding decontamination procedures (as described in Section 3.4.2 of this document) that shall be performed prior to RHWM division's receipt of such waste streams.

Solid lab trash and non-biohazardous liquid wastes that are also nonhazardous and nonradioactive are not subject to regulatory accumulation requirements, but are routinely managed the same way that biohazardous wastes are managed as a BMP. Non-biohazardous wastes are segregated from all other waste types and accumulated in a container as nonhazardous waste. All biological components shall be listed on the container label to alert waste handlers of the biological nature of the waste. Waste containing only non-biohazardous components shall not be decontaminated as described in Section 3.4.2, since chemical decontaminating agents cannot be autoclaved due to health and safety reasons.

Sharps Waste: Biological (Biohazardous and Non-biohazardous). Sharps wastes become subject to the MWMA when they contain biohazardous components. Biohazardous sharps wastes shall be collected at the site of generation and accumulated and stored in puncture-resistant sharps containers that are labeled “Sharps Waste” or with the international biohazard symbol and the word “biohazard.” Only red sharps containers are to be used to accumulate and store sharps wastes contaminated with biohazardous components.

Sharps wastes contaminated with biohazardous components may be accumulated in red sharps containers above 0°C (at room temperature) until the container becomes 3/4 full. Once the container is 3/4 full, the accumulated wastes accumulated above 0°C shall be treated within seven calendar days. If freezer space is available, sharps wastes may be transferred to the freezer and stored below 0°C for up to an additional 90 days after the container becomes 3/4 full. Waste accumulated at room temperature shall be transferred to the freezer within seven days from the day the container becomes 3/4 full so that the treatment time limit is not exceeded. If the container is stored at room temperature for any time after the container becomes 3/4 full, the period of time the container is stored at room temperature shall be included as part of the 90-day storage time in the freezer. Such waste shall be treated by the end of the 90-day storage period.

LLNL does not provide sharps containers or treatment and disposal services for home-generated sharps (i.e., syringes used for self-medicating purposes). Therefore, home-generated sharps shall be taken home for disposal. The local waste management service at home can provide individuals with home-generated sharps disposal guidance specific to their area.

Non-biohazardous sharps wastes which are also nonhazardous and nonradioactive are managed as nonhazardous waste. A nonhazardous waste label shall be placed on the sharps container, and all biological components shall be listed on the container label to alert waste handlers of the biological nature of the waste. As stated in the previous section, wastes containing only non-biohazardous components shall not be decontaminated since chemical decontaminating agents cannot be autoclaved due to health and safety reasons.

Sharps Waste: Hazardous and/or Radioactive Which Also Contain Biological

Components. Rigid sharps containers shall also be used for sharps wastes that contain biohazardous or non-biohazardous components and a hazardous and/or radioactive component. These sharps containers should be of any color other than red to distinguish biohazardous wastes from wastes containing hazardous and/or radioactive components, and the biohazard symbol should not be embossed on the container. Instead, use the appropriate label for the type of waste (i.e., hazardous waste label, radioactive waste label, mixed waste label, or nonhazardous waste label). As required for solid lab trash and liquid wastes, all biological components shall be listed on the container label. Waste management descriptions for these waste types are included in the next three paragraphs.

Waste that contains both biohazardous and hazardous components is designated as hazardous waste, and is subject to regulation as specified in the statutes and regulations applicable to hazardous waste. This waste is managed as a hazardous waste rather than as a biohazardous waste. Rigid sharps containers in a color other than red shall be used, and a hazardous waste label shall be placed on the container instead of a biohazard label. All biohazardous waste components shall be listed on the container label to alert waste handlers of the biological nature of the waste. After the required decontaminating procedures described in Section 3.4.2 are performed (to remove the biohazardous component prior to RHWM's receipt of the waste), the chemical used for decontamination shall also be listed on the container label.

Waste that contains a biohazardous component and a radioactive component is designated as radioactive waste and is subject to regulation as specified in the statutes and regulations applicable to radioactive waste. This waste is managed as a radioactive waste rather than biohazardous waste. Rigid sharps containers in a color other than red shall be used, and a radioactive waste label shall be placed on the container instead of a biohazard label. All biohazardous waste components shall be listed on the container label to alert waste handlers of the biological nature of the waste. Once the required decontaminating procedures described in Section 3.4.2 are performed (to remove the biohazardous component prior to RHWM's receipt), the chemical used for decontamination shall also be listed on the container label.

Waste that contains a biohazardous component, a hazardous component, and a radioactive component is mixed waste or California combined waste and is subject to regulation as specified in the statutes and regulations applicable to hazardous waste and radioactive waste or solely radioactive waste. (This waste is managed as a mixed waste or California combined waste rather than biohazardous waste.) Rigid sharps containers in colors other than red shall be used, and a mixed waste label or radioactive waste label (for California combined waste) shall be placed on the container instead of the biohazard label. All biohazardous waste components shall be listed on the container label to alert waste handlers of the biological nature of the waste. Once the required

decontaminating procedures described in Section 3.4.2 are performed (to remove the biohazardous component prior to RHWM's receipt), the chemical used for decontamination shall also be listed on the container label.

3.4.2 Decontamination Procedures for Waste Containing Biohazardous and Hazardous and/or Radioactive Components

Any waste containing a chemical component or radioactive component cannot be autoclaved due to health and safety reasons; therefore, it shall be managed by an RHWM Field Technician. For wastes containing a biohazardous component and a hazardous and/or radioactive component, generators shall add a decontaminating agent (such as bleach) to the waste prior to RHWM's receipt of the waste in order to eliminate the biohazardous components in the waste. Any decontamination agents added to this type of waste to eliminate the biohazardous component shall be listed on the container label and on the WDR prior to RHWM's receipt of the waste. The ES&H environmental analyst shall also be contacted before a decontaminating agent is added to the waste stream to evaluate chemical compatibility and other safety issues.

3.4.3 Biological Waste Disposal

Biohazardous waste generated at the Biology and Biotechnology Research Program (BBRP) is autoclaved at Building 361 on an as-needed basis. All biohazardous waste generated by organizations other than BBRP is transported to Building 361 by an RHWM Field Technician according a schedule established by RHWM and BBRP. The waste is treated by steam sterilization (autoclaving) in Building 361.

Autoclaving of all non-biohazardous waste should also be performed as an internal LLNL BMP once the waste container becomes full. Organizations that do not have an autoclave should establish an agreement with BBRP to have their biohazardous and non-biohazardous waste autoclaved. Individual organizations may choose to purchase an autoclave to treat their biohazardous and non-biohazardous waste. If an autoclave is purchased to treat biohazardous waste, permitting requirements apply. Once solid waste is autoclaved, it is placed in the municipal trash. The only exception is chemotherapy and pathology waste, which shall be incinerated. Liquid waste is steam sterilized (autoclaved) before disposal. Autoclaved liquid waste may be discharged to the sanitary sewer only on a case-by-case basis with prior approval from the ES&H Team environmental analyst.

Autoclaving is the only current option for treatment of liquid biohazardous waste generated at LLNL; a bleach solution shall not be added to this waste as a treatment method, since this would eliminate the only available option of autoclaving the waste. Liquid biohazardous waste may be discharged to the sanitary sewer on a case-by-case basis, but only after autoclaving and with approval from the ES&H environmental

analyst. Non-biohazardous liquid waste that does not require treatment by steam sterilization may be discharged to the sanitary sewer following addition of a bleach solution to the waste as a BMP on a case-by-case basis, with prior approval from the ES&H environmental analyst. Sharps wastes containing a biohazardous waste component are autoclaved to eliminate the biohazardous component, then sent offsite for incineration through RHWM. Sharps wastes characterized as hazardous, radioactive, mixed, or California combined are not autoclaved because of safety reasons, but are still disposed of through RHWM. BBRP only autoclaves sharps wastes that do not contain hazardous (chemical) or radioactive components and are characterized as either biohazardous wastes or non-biohazardous wastes. BBRP signs the WDRs for these sharps waste types prior to RHWM's receipt. Sharps wastes characterized as hazardous, radioactive, or mixed wastes are not transported to BBRP for autoclaving due to health and safety purposes; instead, the generator is required to complete and sign WDRs for these wastes prior to RHWM's direct receipt of the waste.

Trauma scene waste is managed by the LLNL Fire Department and is transferred to the Health Services Department's designated waste storage area at Building 663.

3.4.4 Documentation

Generators of biohazardous waste are required to maintain an updated waste treatment record to ensure that all generated waste was successfully sterilized within the regulatory time frames. Generators use a standard log, as included in Appendix B, to maintain this information.

Operators of autoclaves used onsite to sterilize biohazardous waste are responsible for ensuring that the following autoclave recordkeeping requirements are met:

- Annual autoclave calibration records.
- Monthly *Bacillus stearothermophilus* ampule test records.
- Records of heat-sensitive tape results for each autoclaved waste load.

Documentation is not required for non-biohazardous wastes.

4.0 Training

4.1 Hazardous Waste Training Requirements

Except for individuals who are defined as limited waste generators, any person who generates hazardous waste is initially required to take the LLNL training courses EP0006-COR, Regulated Waste Generation and Certification Core Training, and EP0006-HZ, Hazardous Waste Generation and Certification Module, and, annually

thereafter, complete the training course EP0006-HZRW, Hazardous Waste Generation and Certification Module Refresher. Individuals identified as limited waste generators receive training specific to the job activity. The limited waste generator's first-line supervisor can provide the training. Such training should include instructions related to responsibilities detailed in Document 36.3.

4.2 Radioactive Waste Training Requirements

Individuals who generate waste containing radioactive components are required to take EP0006-COR, Regulated Waste Generation and Certification Core Training, and EP0006-RD, Radioactive Waste Generation and Certification Module, and, annually thereafter, complete the training course EP0006-RDRW, Radioactive Waste Generation and Certification Module Refresher

Waste generators should check with their organization for any additional training related to work involving radioactive materials that may be required to perform specific tasks in their program area.

4.3 Biological Waste Training Requirements

The Medical Waste Management Act does not require formal training for individuals who generate, treat, or transport biohazardous waste. The ES&H Team environmental analyst and industrial hygienist can provide training classes upon request. Contact the ES&H Team environmental analyst for training regarding biological waste management, including storage procedures and preparation for waste treatment or disposal. The area RHWM field technician can assist generators of biohazardous waste in ensuring receipt of proper biohazardous and sharps containers, biohazard bags, and labels.

5.0 Engineering Controls

Engineering controls for hazardous waste include use of secondary containment, prevention of storm water run-on and runoff, segregation of incompatible waste, and providing and maintaining emergency response equipment.

Allowed onsite treatment methods for biohazardous waste are incineration and steam sterilization. Chemotherapy, pathology, and sharps wastes are all shipped to an offsite disposal facility for incineration.

6.0 Responsibilities

This section describes the responsibilities of the Environmental Protection Department and program workers as related to waste management activities. Responsibilities for managing waste in SAAs and WAAs are discussed in more detail in Document 36.3.

6.1 Worker Responsibilities

Workers performing the work are responsible for:

- Knowing the waste management requirements of their assignments and the potential hazards and applicable controls for the work area.
- Successfully completing all required waste management training.
- Ensuring that all waste they generate has been authorized.
- Immediately correcting and/or informing the RI of any problems related to waste management.
- Maintaining treatment logs for biohazardous waste.

6.2 Responsible Individual Responsibilities

The Responsible Individual:

- Identifies waste generated by work activities, including waste constituents, concentrations, and matrices.
- Ensures that workers supporting their work activities have the required safety training, including waste management training, or that they work under the direct supervision of a trained individual.
- Ensures that waste management requirements for carrying out the work activity are identified and communicated to those performing the work.
- Signs or ensures that qualified workers sign waste disposal requisitions for waste generated by the work activity.
- Ensures that life-cycle planning is performed before startup of any process or experiment with the potential to generate mixed or radioactive waste, as required by DOE Order 435.1 and DOE M 435.1-1.

6.3 Authorizing Individual Responsibilities

The Authorizing Individual:

- Allocates resources for waste management requirements and ensures that adequate funding, time, and resources are available for waste management requirements associated with the work.
- Ensures that work controls required to manage hazardous, biohazardous, radioactive, or mixed waste are in place.
- Ensures that workers performing tasks within an authorized activity comply with facility-specific requirements, including waste management training.

6.4 Environmental Protection Department Responsibilities

The Environmental Protection Department (EPD) provides LLNL employees with access to environmental subject-matter experts as well as training on waste management issues. The Operations and Regulatory Affairs Division (ORAD) provides analysis, guidance and support associated with environmental permits and regulations. The RHWMD Division of EPD provides waste management support associated with managing SAAs and WAAs, and can provide additional support by agreement.

6.4.1 ES&H Team Environmental Analyst Responsibilities

The environmental analyst is a member of the Environmental Operations Group (EOG) within ORAD, and serves on ES&H Teams. The ES&H Team environmental analysts:

- Provide guidance to LLNL programs and organizations regarding waste management requirements. A referral may be made to the Permits and Regulatory Affairs Group (PRAG) or other subject matter experts in EPD.
- Assist waste generators with identifying hazardous, biohazardous, radioactive, or mixed wastes, and assists with the determination of hazardous properties.

6.4.2 Permits and Regulatory Affairs Group Responsibilities

The Permits and Regulatory Affairs Groups (PRAG) group within ORAD:

- Obtains waste permits.
- Acts as liaison between LLNL and agencies that regulate hazardous and biohazardous waste.
- Submits required reports and fees to regulatory agencies.

6.4.3 Radioactive and Hazardous Waste Management Division Responsibilities

The RHWMD Division:

- Provides waste management support to authorizing organizations as discussed in Appendix D of Document 2.1, Laboratory and ES&H Policies, General Worker Responsibilities and Integrated Safety Management,” in the *ES&H Manual*.
- Assists the waste generator in identifying waste constituents and concentrations by arranging for certified or non-certified laboratory analyses.
- Assists the ES&H Team environmental analyst by gathering information on types, amounts, and locations of hazardous waste being generated.
- Assists the waste generator with determining the proper containers, labels, and required analyses and WDR information.

Stores, treats, transports, and disposes of wastes.

- Disposes of PCB contaminated oils and equipment, and maintains records and reports for PCB-waste activities.

7.0 Work Standards

7.1 Work Smart Standards

22 CCR §§ 65600–65628, *Minimum Standards for Permitting Medical Waste Facilities*.

22 CCR §§ 66261.1–66261.126 and appendices, *Identification and Listing of Hazardous Waste*.

22 CCR §§ 66262.10–66262.89, *Standards Applicable to Generators of Hazardous Waste*.

22 CCR §§ 66263.10–66263.50, *Standards Applicable to Transporters of Hazardous Waste*.

22 CCR §§ 66264.1–66264.1102 and appendices, *Standards for Owners and Operators of Hazardous Waste Transfer, Treatment, Storage, and Disposal Facilities*

22 CCR §§ 66265.1–66265.1102 and appendices, *Interim Status Standards for Owners and Operators of Hazardous Waste Transfer, Treatment, Storage, and Disposal Facilities*.

22 CCR §§ 66268.1–66268.124 and appendices, *Land Disposal Restrictions*.

22 CCR §§ 66270.1–66270.73 and appendices, *Hazardous Waste Permit Program*.

29 CFR 1910 Subpart Z, *Toxic and Hazardous Substances* (1910.1000 to 1910.1450 App B)

29 CFR 1926 Subpart D, *Occupational Health and Environmental Controls* (1926.50 to 1926.66)

40 CFR 170, *Worker Protection Standard*.

40 CFR 260, *Hazardous Waste Management System: General*.

40 CFR 261, *Identification and Listing of Hazardous Waste*.

40 CFR 262, *Standards Applicable to Generators of Hazardous Waste*.

40 CFR 263, *Standards Applicable to Transporters of Hazardous Waste*.

40 CFR 264, *Standards for Owners and Operators of Hazardous Waste, Treatment, Storage, and Disposal Facilities*.

40 CFR 265, *Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities*.

40 CFR 266.200–266.206, *Military Munitions*.

40 CFR 268, *Land Disposal Restrictions*.

40 CFR 270, *EPA Administered Permit Programs: The Hazardous Waste Permit Program*.

40 CFR 761, *Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions*.

CA Health & Safety Code § 25100-25280.28, *Hazardous Waste Control*.

CA Health and Safety Code §§ 117600–118360, *Medical Waste Management Act*.

DOE M 435.1-1, “Radioactive Waste Management Manual”, Chapter I, General Requirements and Responsibilities. All sections, except for DOE Orders incorporated by reference, which are applicable only to the extent they were adopted site-wide in the LLNL Work Smart Standards (delete 1.2.A through 1.2.F.). Chapter II, High-Level Waste Requirements, is not applicable. Chapter III, Transuranic Waste Requirements, Section A through Q [delete B (3), C, D (4), H (1), H (2), N (4) and P]. Chapter IV, Low Level Waste Requirements, Sections A through R [delete C, D (4), G (1)(d) 1-5, M (1) (c), M (3), N (2) N (7), P, Q, and R (3)]. [Any radioactive waste that creates a “high radiation area” as defined in 10 CFR 835 (i.e., a deep dose equivalent rate in excess of 0.1 rem in one hour at 30 cm from the waste container) is subject to an 18-month storage limitation.]

DOE O 435.1, “Radioactive Waste Management,” Attachment 1, Contractor Requirements Document. [Any radioactive waste that creates a “high radiation area” as defined in 10 CFR 835 (i.e., a deep dose equivalent rate in excess of 0.1 rem in one hour at 30 cm from the waste container) is subject to an 18-month storage limitation.]

Public Law 42 U.S.C. 6923, Resource Conservation and Recovery Act.

UCRL-AR-130204, LLNL Onsite Packaging and Transportation Safety Standard.

UCRL-AR-133355, Radioactive Waste Storage Facility and Tank System Design Criteria Standards.

8.0 Resources for More Information

8.1 LLNL Contacts

ES&H Team environmental analysts support programmatic and RHWL activities and can assist with waste management issues, including regulatory interpretation, handling, and spill response. The RHWL field technicians can assist waste generators with packaging, labeling, sampling, preparation of waste documents, and transport issues.

8.2 Other Sources

Lawrence Livermore National Laboratory, LLNL Low-Level Waste Program
Certification and Quality Assurance Plan, M-078-95:

<http://www-r.llnl.gov/ibis/lof/documents/pdf/241819.pdf>.

<http://www-r.llnl.gov/ibis/lof/documents/pdf/228678.pdf>

Lawrence Livermore National Laboratory, Waste Acceptance Criteria, UCRL-MA-115877, Rev. 1, August 1997 (or current version):

<http://www-r.llnl.gov/ibis/lof/documents/pdf/231441.pdf>.

Lawrence Livermore National Laboratory, Site Treatment Plan, DOE/OAK Doc. No. 97-W-069/5400.2.a.3.1, February 1997.

LLNL Radioactive Waste Management Basis.

LLNL Training Course, EP0006-COR, Regulated Waste Generation and Certification
Core Training.

LLNL Training Course EP0006-HZ, Hazardous Waste Generation and Certification
Module

LLNL Training Course EP0006-RD, Radioactive Waste Generation and Certification
Module

Appendix A

Acronyms, Terms and Definitions

ACM	Asbestos-containing material
Acutely and Extremely Hazardous Waste	Acutely hazardous and extremely hazardous waste are categories of hazardous wastes considered by the Federal EPA and State Department of Toxic Substances Control (DTSC) as capable of causing death, or significantly contributing to an increase in serious, irreversible, or incapacitating and reversible illness. In addition, the EPA considers P-listed wastes found in 40 CFR 261.33 to be acutely hazardous. The DTSC defines an extremely hazardous waste on the basis of EPA criteria and several additional criteria, including type and concentration of constituents in the waste, impact on human health, water reactivity, and bioaccumulation potential. Any hazardous material or waste listed in 22 CCR 66261.126, Appendix X, with an asterisk next to the chemical name, is considered to be extremely hazardous.
Asbestos Waste	Asbestos refers to a group of six fibrous, magnesium silicate minerals used in construction materials and other products consisting of chrysotile, crocidolite, amosite, and the fibrous forms of actinolite, tremolite, and anthophyllite. Intact asbestos-containing material (ACM) is not considered hazardous unless the material is disturbed or deteriorates, causing loose fibers to become airborne and respirable. Asbestos that becomes friable is managed as hazardous waste.
Biohazardous Waste	<p>Biohazardous waste includes any of the following:</p> <ul style="list-style-type: none"> • Animal parts, tissues, fluids, or carcasses known to be infected with diseases highly communicable to humans. • Laboratory wastes containing human or animal specimen cultures; cultures and stocks of infectious agents; waste from the production of bacteria, viruses, and spores; discarded human or animal vaccines; and culture dishes.

Biohazardous Waste (cont'd)

- Recognizable human blood, in fluid form, and items containing enough human blood that the item releases the blood upon compression (i.e., soaked bandages or clothing).
- Human or animal excretion, exudate, or secretions required to be isolated by infection control staff.
- Human surgery specimens or tissues removed at surgery or autopsy suspected of being contaminated with infectious agents communicable to humans.
- Pathology waste (e.g., recognizable human parts).
- Chemotherapy waste.
- Broken glass items, such as blood vials and pipettes, contaminated with biohazardous components.
- Discarded hypodermic needles, syringes, blades, needles with attached tubing, and scalpels contaminated with biohazardous components.

Trauma scene waste is regulated according to Section 5193 of Title 8 of the California Code of Regulations (CCR). Examples include bandages, cloths, or personal protective equipment that become soiled with human blood; human body fluids; or other residues from the scene of a serious human injury, illness, or death (e.g., a 911 call followed by Fire Department response). The LLNL Fire Department manages the waste by transporting it to the Health Services Department during business hours.

See Section 3.0 for requirements pertaining to biohazardous waste management. Specific information on managing biohazardous wastes can be obtained from the ES&H Team environmental analyst or the RHWM technician.

Biological Waste (cont'd)

Biological waste is an overall term for waste containing living or non-living organisms. Two subsets of biological waste include wastes which contain components subject to the Medical Waste Management Act (referred to as biohazardous wastes), and wastes which contain organisms not regulated as medical wastes (referred to as non-biohazardous waste). Examples of non-biohazardous wastes specifically excluded from the regulated medical waste classification in Section 117700 of the CA Health and Safety Code are:

- Waste generated in food processing or biotechnology that does not contain an infectious agent.
- Waste generated in biotechnology that does not contain human blood or blood products or animal blood or blood products suspected of being contaminated with infectious agents known to be communicable to humans.
- Urine, feces, saliva, sputum, nasal secretions, sweat, tears, or vomitus, unless it contains fluid blood.
- Waste that is not biohazardous, such as paper products, articles containing non-fluid blood, and other medical solid waste products commonly found in the facilities of medical waste generators.
- Hazardous waste, radioactive waste, or household waste.
- Waste generated from normal and legal veterinarian, agricultural, and animal livestock management practices on a farm or ranch.

Other examples of non-biohazardous wastes typically generated at LLNL are as follows:

- Non-living or non-infectious strains of bacteria or viruses.
- Cell lines, cell cultures, or tissues without human fluids.

Biological Waste (cont'd)	<ul style="list-style-type: none"> • Molds. • Animal blood (unless known to contain infectious agents known to be communicable to humans).
BMP	Best Management Practices
California Combined Waste	California Combined Waste means waste that meets the definition of low-level radioactive waste and also contains a State of California regulated hazardous constituent only and is free of RCRA hazardous waste constituents.
CCR	California Code of Regulations
CFR	Code of Federal Regulations
DOT	Department of Transportation
DTSC	Department of Toxic Substances Control
EOG	Environmental Operations Group within ORAD
EPA	Environmental Protection Agency
EPD	Environmental Protection Department
Explosive Waste	Explosive waste is defined as explosive-contaminated waste or explosive material removed from inventory that is considered waste. From a regulatory point of view, explosive waste is considered to be hazardous waste based on characteristics (reactive waste). See Document 17.1 for more information on the definitions and categorizations of explosive wastes.
Hazardous Waste	Once a substance can no longer be used for its intended purpose, the material is considered a waste, and may be deemed a hazardous waste by characterizing the waste as either a listed waste or a characteristic waste. The four hazardous waste characteristics are defined below.

Hazardous Waste (cont'd)

Ignitable

A liquid waste is ignitable if its flash point is less than 140°F (60°C); however, there are certain exemptions for alcohol. A solid waste is ignitable if it is capable, under standard temperature and pressure, of causing fire through friction, absorption of moisture, or spontaneous chemical changes, and when ignited it burns so vigorously and persistently that it creates a hazard. A gas is considered to be ignitable if it is defined as an ignitable compressed gas in the Department of Transportation (DOT) regulations in 49 CFR 100–199, *Research and Special Programs Administration, DOT*. A waste is also considered to be ignitable if it is an oxidizer according to DOT regulations (e.g., hydrogen peroxide is an oxidizer at concentrations equal or greater to percentages by DOT regulations).

Corrosive

A waste is classified as corrosive if it has a pH ≤ 2.0 or a pH ≥ 12.5 . A liquid waste is also corrosive if it corrodes steel at a rate greater than 0.25 inch per year (examples include acids, plating wastes, and strong bases). Non-liquid waste is classified as corrosive if, when combined with an equal volume of water, it corrodes steel at a rate greater than 0.25 inch per year, or has a pH ≤ 2.0 or a pH ≥ 12.5 .

Reactive

A waste is reactive if a representative sample of the waste has any of the following properties:

- Normally unstable and readily undergoes violent change without detonating.
- Reacts violently with water.
- Forms potentially explosive mixtures with water.
- When mixed with water, generates toxic gases, vapors, or fumes in a quantity sufficient to present a danger to human health or the environment.
- Contains cyanide or sulfide-bearing waste, which, when exposed to pH conditions between 2 and 12.5, can generate toxic gases, vapors, or fumes in a quantity sufficient to present a danger to human health or the environment.

Hazardous Waste (cont'd)

Reactive

- Capable of detonation or an explosive reaction if subjected to a strong initiating source, or if heated under confinement.
- Readily capable of detonation or explosive decomposition or reaction at standard temperature and pressure.
- A forbidden explosive is defined in DOT regulation 49 CFR Ch. 1, Section 173, A forbidden explosive shall not be transported or offered for transport. See Section 173.54 for specific information or contact an Explosives Safety Engineer.

Note: If working with explosives waste, refer to **Explosives Waste Management, in Document 17.1 of the *ES&H Manual*.**

A waste is toxic under federal RCRA hazardous waste regulations if samples of the waste contain any contaminants cited in the regulations and if any of the contaminants are above specified levels, as determined by using an extraction technique called the toxicity characteristic leaching procedure (TCLP). The State of California uses several additional tests for toxicity, including additional extraction tests, and oral, dermal, inhalation, and aquatic thresholds specific to certain test animal species. Contact the ES&H Team environmental analyst for more detailed information on toxicity tests.

In addition, some toxic wastes, such as PCBs, are not regulated under RCRA but are regulated federally under the TSCA. Under state regulations, these wastes are managed as a hazardous waste. See Document 14.14 for specifics regarding the management of such wastes.

HWCL

California Hazardous Waste Control Law

LLW

Low-level waste

Limited Waste Generator	An individual who only generates waste managed in a SAA and who does not sign a Waste Disposal Requisition (WDR) is considered to be a “limited generator.” A limited waste generator, however, shall ensure that the components contributed to a waste stream are accurately identified (e.g., a Waste Accumulation Log is used to identify waste composition and matrix, hazardous and/or radioactive constituents, and their amounts each time waste is added to a container).
MW	Mixed waste
Mixed Waste	Mixed waste is waste that contains both a radioactive constituent and a RCRA hazardous constituent. Wastes can become mixed because of (1) generation as mixed waste during an experiment or procedure, (2) exposure of RCRA hazardous waste to unconfined sources of radioactivity to the point that the waste becomes radioactive, or (3) improper waste segregation. Management of mixed waste is discussed in Section 3.0 of this document.
MWMA	Medical Waste Management Act
OPIM	Other potentially infectious materials
ORAD	Operations and Regulatory Affairs Division within EPD
PCB	Polychlorinated biphenyl
ppm	Parts per million
PRAG	Permits and Regulatory Affairs Group within ORAD
Radioactive Waste	<p>A radioactive waste meets the definition of low-level waste (LLW), transuranic waste (TRU), or mixed waste (MW). LLW is defined in DOE M 435.1-1.</p> <p>LLW is waste that is not high-level radioactive waste, spent nuclear fuel, TRU, and byproduct material [as defined in Section 11e. (2) of the Atomic Energy Act of 1954, as amended], or naturally occurring radioactive material.</p>

Radioactive Waste

TRU is radioactive waste containing more than 100 nanocuries (3700 becquerels) of alpha-emitting transuranic isotopes per gram of waste, with half-lives greater than 20 years, except for:

High-level waste Waste that the Secretary of Energy has determined, with concurrence of the EPA Administrator, to not need the degree of isolation required by the 40 CFR Part 191 disposal regulations; or

Waste that the Nuclear Regulatory Commission has approved for disposal on a case-by-case basis in accordance with 10 CFR Part 61.

Mixed waste is radioactive waste that contains a RCRA hazardous constituent. Radioactive wastes are excluded from hazardous waste regulations unless the waste also contains a RCRA hazardous constituent. Radioactive wastes that contain a California-only listed hazardous waste constituent are currently managed as radioactive waste.

LLW is discussed in:

- The LLNL Radioactive Waste Management Basis (RWMB).
- The LLNL Low-Level Waste Program Certification and Quality Assurance Plan (M-078-95).
- The Low-Level Waste Generation and Certification course (EP0110).
- The Hazardous Waste Management Waste Acceptance Criteria (WAC; UCRL-MA-115877).

Transuranic waste is discussed in:

- The Transuranic Waste Characterization Quality Assurance Project Plan (UCRL-AR-119486).
- The Transuranic Waste Generation and Certification course (EP00021).
- RWMB.
- The Waste Acceptance Criteria (UCRL-MA-115877).

Radioactive Waste (cont'd) The above documents can be found at the following Internet addresses:

High-level waste

LLNL Transuranic Waste Characterization Quality Assurance Project Plan

<http://www-r.llnl.gov/ibis/lof/documents/pdf/228678.pdf>

HWM Waste Acceptance Criteria

[Note: Since publication of the WAC, HWM has been renamed Radioactive and Hazardous Waste Management (RHWM) Division]

<http://www-r.llnl.gov/ibis/lof/documents/pdf/231441.pdf>

Low-Level Waste Program Certification and Quality Assurance Plan

<http://www-r.llnl.gov/ibis/lof/documents/pdf/241819.pdf>

Radioactive Waste Management Basis

Available in hardcopy format from the RHWM Division

In response to DOE concerns about wastes shipped from DOE sites, LLNL has developed a waste certification process to ensure that all of its wastes are accurately characterized. The process is important to understand, especially for those operations or authorizing organizations that generate a radioactive waste stream. Contact the ES&H Team environmental analyst for further information about waste certification.

RCRA	Federal Resource Conservation and Recovery Act
RHWM	Radioactive and Hazardous Waste Management Division within EPD
RMMA	Radioactive Materials Management Area
RWMB	Radioactive Waste Management Basis
SAA	Satellite accumulation area

TCLP	Toxicity characteristic leaching procedure
TRU	Transuranic waste
TSCA	Federal Toxic Substances Control Act
WAA	Waste accumulation area
WAC	Waste Acceptance Criteria
Waste Certification	Waste certification is similar to other types of certification. It compares an item (in this case, waste) to a specific set of criteria and verifies that the item meets those criteria.
Waste Determination	The waste generator, ES&H environmental analyst, RHWM review chemist, and RHWM field technician all have a part in making waste determinations. In the context of the definition of a waste generator, waste determination is performed by using information obtained through required training to determine if any constituents in a waste potentially exhibit any of the four hazardous properties. This process is required to ensure that the correct hazardous properties are initially checked on the waste label prior to waste generation. Once the waste is generated, the waste generator works with the RHWM field technician to decide if analytical testing is needed to further identify the waste constituents and concentrations.
Waste Generator	A waste generator is any individual who handles hazardous waste, makes hazardous waste determinations, participates in any emergency response activity associated with waste handling, and/or manages a WAA.
Waste Identification	Waste identification involves identifying the composition of the waste, waste constituents and concentrations of each constituent (through generator knowledge and/or laboratory analyses), as well as the process that generates the waste. Waste identification is required in order to determine if a waste meets hazardous, radioactive, mixed, or biohazardous waste criteria.
WDR	Waste Disposal Requisition
WSS	Work Smart Standards

Appendix B

Biohazardous Waste Log

[illegible]

1. Waste Type (Solid Lab Trash/Liquid or Sharps): (enter code)
 - a. Biohazardous Solid Lab Trash/Liquid waste subcategories:
LW - Lab Waste (paper, plastic, glass); BF - Blood/Body Fluids; SS - Surgical Specimens (small quantities <50g); IA - Isolation Waste; O - Other.
 - b. Sharps: S
2. Waste Start Date:
 - a. Biohazardous Solid Lab Trash and Liquid - Biohazardous waste shall not be stored above 0 degrees Centigrade for more than 7 days. The workplace start day is the day the first biohazardous waste article is placed in the container.
 - b. Biohazardous Sharps Waste - Sharps containers ready for disposal (i.e., closed, full containers) shall not be stored above 9 degrees Centigrade for more than 7 days. The workplace start day is the day the container becomes full and is closed.